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Entrenched Power: How Shareholder-Owned Electric Utilities Hinder the Clean Energy Transition

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I. Introduction

The United States is in the beginning stages of a momentous energy transition. In the next few decades, our country must move away from an arcane, centralized, fossil fuel–based energy system and toward a more decentralized, renewable system promising to "electrify everything"—from heating, to cooking, to transport, to data processing, and beyond. Expanding renewable sources of electricity has been a centerpiece of the Biden administration's climate industrial policy, and is especially critical as the country faces an unexpected surge in peak load demand from booming manufacturing, as well as from AI data processing and broader end-use electrification (Plumer and Popovich 2024; Halper 2024; Lee et al. 2023). This boom in electricity demand is prompting a knee-jerk reaction from the utility industry to retain existing gas-fired power plants or to build new ones, further locking in fossil fuel power generation. These steps are antithetical to decarbonization goals, which require both a rapid drawdown in oil, gas, and coal paired with rapid and sustained clean energy investments. Bringing renewable energy supply on fast enough to not only keep pace with increasing demand but also replace the toxic legacies of existing fossil fuel generation—at a cost consumers can afford—is imperative. So what obstacles are stopping this process from happening?

This brief explores the role of consolidated investor-owned electric utilities as gatekeepers actively slowing—or in some cases outright blocking—the renewable energy build-out and working against the implementation of essential climate change policies such as the Inflation Reduction Act. It finds that this gatekeeper status—and governance failures surrounding it—allows utilities and their transmission organizations to control two key operational levers that determine the speed and cost of renewables: interconnection and transmission. All else being equal, the current incentive structure leads incumbent utilities to prefer developing slow, expensive, fossil fuel–based infrastructure that they can control within their captive footprints, while also blocking new, cheaper, renewable infrastructure developed by a suite of different actors and transmitted over new, interregional power lines. This brief sketches out *how* and *why* investor-owned electric utilities abuse their position as incumbents to impose unnecessary bottlenecks that slow and inflate the cost of the energy transition. It then provides proposals for how local, state, and federal governments can shift incentive structures to overcome these bottlenecks, reduce utility bills for families, and accelerate the renewable energy transition.

II. The Benefits and Challenges of a 21st-Century Clean Energy Grid

To reach the overall goal of net-zero emissions by 2050, the US must double its share of electricity generated by non-carbon-emitting sources by 2030 (National Academies 2021). This means that roughly 1,000 gigawatts (GW) of wind and solar need to be sited, built, and connected to the grid by 2030.[1] To put that in perspective, the US currently has 1,279 GW of installed electric generation capacity. While doubling the country's electricity capacity with renewables in under a decade may seem insurmountable, innovation and policy headwinds are helping. Renewable electricity generation is now cheaper than other energy sources (Abhyankar et al. 2021), and the Inflation Reduction Act (IRA) has provided a historic influx of funding and financing options to build renewable energy infrastructure across the country. A few utility companies are responding to IRA incentives by leaning into utility-scale clean energy. Florida Power and Light, for example, is on track to replace about a third of its existing fossil generation with renewables by 2030, according to the Sierra Club. While the company still has a long way to go toward 100 percent clean energy, IRA provisions have helped it bring down the costs of solar and wind by over a third, allowing it to pass on some of these savings to customers (Fogler and Ver Beek 2023). But this example of progress is rare. The pace of bringing on renewable energy generation in the US is still too slow, and utility companies are often to blame.

Despite the fact that the cost of generating electricity from renewables is now lower than fossil fuel generation, renewable energy developers face widespread challenges (Christophers 2024). As this brief will explore, one main challenge to clean energy deployment is the long and convoluted process to connect new energy projects to the grid. Almost 2,500 GWs of potential renewable generation and untapped storage capacity is waiting for authorization to connect to the grid (Rand et al. 2024). That's about double the entire 1,279 GW of electric generation capacity currently installed nationwide—just waiting in line, mired in energy purgatory without permission to launch projects.

[1] This brief focuses its analysis on "traditional" renewable electricity–generating resources, namely solar and wind. Other non-carbon-emitting resources, such as nuclear or green hydrogen, as well as battery storage systems, are outside the brief's scope.

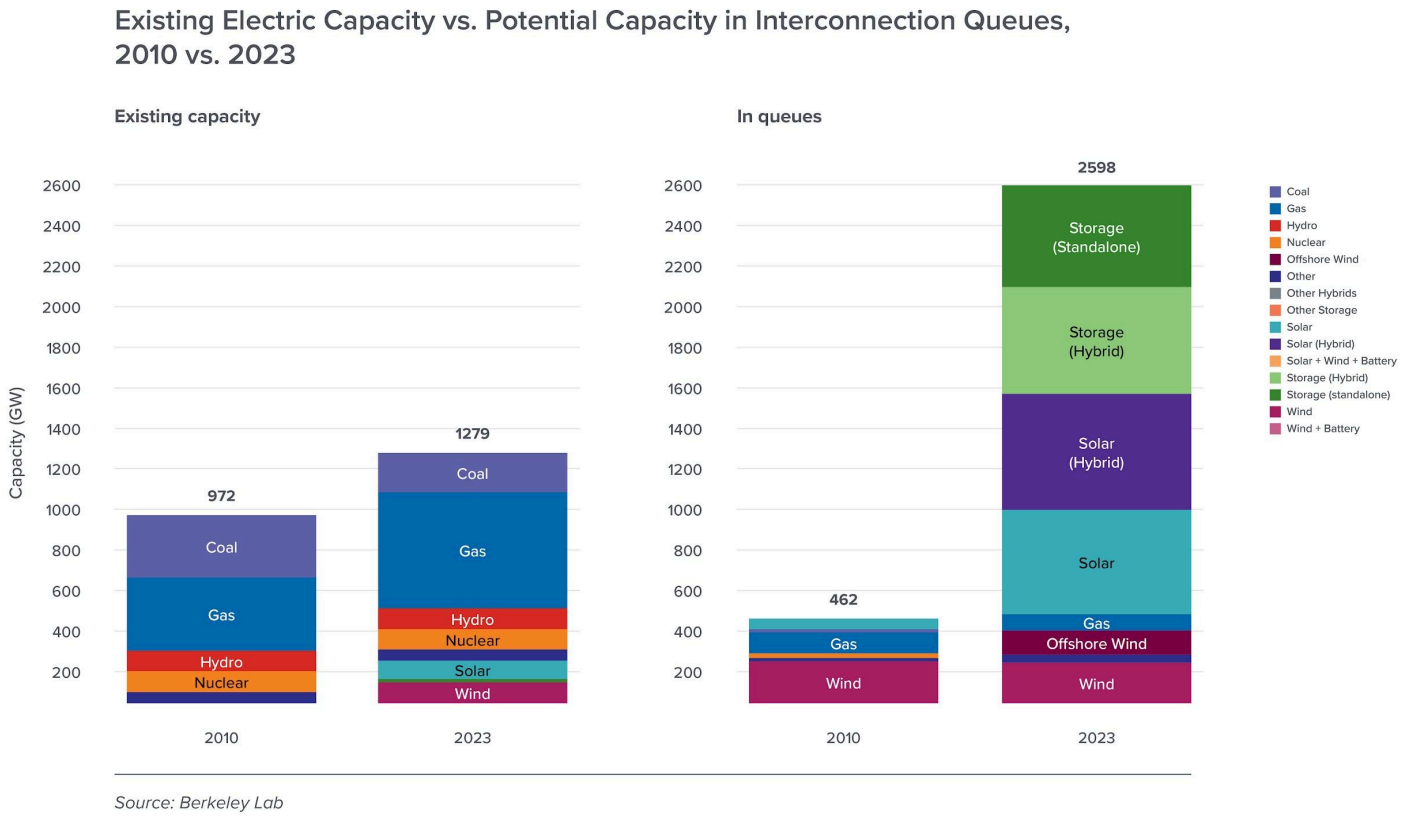

Figure 1. Source: Rand et al. 2024; Berkeley Lab 2024

Untapped, unbuilt renewable resources make up 95 *percent* of the electricity in these queues today. Only 5 percent of new projects awaiting permission are fossil fuel–based (Rand et al. 2024). As Figure 1 illustrates, the bottleneck remains in the actual build-out of those new zero-carbon resources like solar, wind, and battery storage. Only one-fifth of projects requesting interconnection from 2000 to 2018 reached commercial operations by the end of 2023, and the typical project took nearly five years to be interconnected (Rand et al. 2024).

In the words of the US Department of Energy (DOE), "the grid is becoming a bottleneck to greater economic development, decarbonization, and equity priorities" (White et al. 2024). Without a swift increase of clean energy supply to meet the current upsurge in demand, electricity costs on consumers and on businesses will only increase. Next year, household electricity prices are forecast to reach their highest level in nearly 30 years (Welton 2024), with Black, Indigenous, and Latinx households paying, on average, higher energy costs as a fraction of income than white households (Farrell 2024). An economy run on affordable, clean electricity, on the other hand, will not only reduce the volatility of energy price inputs across the economy (Melodia and Karlsson 2023; Weber et al. 2022) but also significantly reduce the burden on the one in seven US families currently unable to afford their electricity bills (Rubin, Freed, and Aggarwal 2023). Accelerating the renewable build-out, if governed in the public interest, could save US households upwards of $5 billion per year (Bourgoin et al. 2022).

The widespread economic benefits of a clean energy grid are clear. And if even a third of the renewable projects currently in the interconnection queue were allowed to move forward, we would be well on our way to meeting our goals to decarbonize electricity generation in the face of growing demand. Who or what, then, is standing in the way of unlocking the renewable energy build-out? Experts point to the interconnection and transmission expansion processes—and the influence of incumbent utility companies over such processes—as key bottlenecks posing unnecessary constraints on the renewable build-out, as well as processes that increase the costs of renewable electricity compared to fossil fuels (Deese 2024; Bozuwa and Mulvaney 2023; Kovvali and Macey 2023; Peskoe 2023b; Welton 2021).

Since regulatory changes in the mid-1980s, several hundred independent, local electricity companies have now merged down into today's roughly 40 utility conglomerates—most of which are multistate, multinational holding corporations (Hempling 2018). Even though some have sold their generation assets, these large incumbent utilities still sit at the center of supply and end-use of electricity—acting as gatekeepers of our energy system.

This brief zeroes in on the current incentive structures driving the harmful business practices of these incumbent utilities to effectively discriminate against independent renewable energy producers in favor of themselves and their shareholders. Section III explores *how* utility monopolies slow and inflate the cost of the energy transition through their inordinate influence over interconnection and transmission decisions. Section IV discusses *why* it is currently in the financial interest of these gatekeeping businesses to protect the status quo and prevent an energy transition. And section V provides a suite of policy options that—in tandem or separately—would advance a new paradigm for utility governance that benefits current and future generations of American households, businesses, and the economy as a whole.

III. How Incumbent Utilities Obstruct the Energy Transition

Utilities Slow the Interconnection of Renewable Energy Resources

To provide electricity, renewable energy resources—like rooftop or utility-scale solar, wind, and battery storage—need to be physically connected to the local or regional electric grid. Depending on the region, the rules governing how power projects can get connected to the grid are controlled by utilities and/or regional transmission organizations (RTOs, sometimes referred to as ISOs, or Independent System Operators). While impartial and not-for-profit in theory, these RTOs are heavily

influenced—if not effectively controlled—by their incumbent utility members (Macey 2024; Welton 2021).

This interconnection process requires projects to undergo a series of viability and cost allocation studies. Without explicit permission from utilities and/or RTOs to interconnect, most renewable projects cannot be built. As stated above, nearly 12,000 projects representing 1,570 gigawatts (GW) of generator capacity and 1,030 GW of storage are stuck in the interconnection bottleneck. Every day that passes in these queues, the more the flow of clean energy resources is restricted, and the less financially viable the many small and medium-sized clean energy firms struggling to bring renewables online become.

"From our perspective, the interconnection process has become the No. 1 project killer," said Piper Miller, vice president of market development at Pine Gate Renewables, a major solar power and battery developer, in an interview with the *New York Times* (Plumer 2023). Miller's sentiments are broadly shared by scholars. In contrast to claims that community and environmental reviews are the central obstacle to swift renewable development, several studies pinpoint the slow, uncertain, and expensive process of connecting wind and solar projects to the grid as a pivotal challenge. In one study, renewable energy developers cited interconnection as the single biggest hurdle they face (Driscoll 2022). The Lawrence Berkeley National Laboratory survey of industry professionals found that grid interconnection was more often a leading cause of solar cancellations than community opposition, and that, due in large part to the financial risk and schedule uncertainty of getting renewable projects interconnected, one-third of wind and solar projects are outright canceled (Nilson et al. 2023). Even if they are not canceled outright, a recent national survey of solar developers revealed that nearly three-quarters of solar developers experience interconnection delays. Noncompliance by electric utility firms was cited specifically as a problem by 85 percent of respondents (Kienbaum and Farrell 2021).

How do utility companies slow interconnections? The interconnection process may seem like a faceless bureaucracy for many developers. But ultimately, utility companies and the regional transmission operators they control determine the rules and procedures governing the interconnection and permitting processes within their jurisdictions. Incumbent utility companies and RTOs have designed the interconnection process in several ways that create barriers to entry for renewable energy competitors.

First, overly complex and ambiguous interconnection standards require extensive technical expertise and resources that smaller renewable energy developers may not have the capacity to navigate. Second, utilities and RTOs often fail to disclose essential information critical to the interconnection processes, such as the most cost-effective locations to connect to the grid (Penrod 2022). This information opacity makes an already complex process even more difficult to understand, creating a chilling effect on renewable development. Third, interconnection has become an unreasonably expensive

endeavor, with utilities hiking costs unexpectedly and unjustifiably in several cases. In the midwestern and southern regions encompassing the territory of the Midcontinent Independent System Operator (MISO) organization, utilities have been found to be "cooking the books" with local criteria in order to saddle independent generators with additional costs (Peskoe 2023a). The possibility of surprise fees understandably deters developers and customers (Farrell 2024). Fourth, utilities and RTOs have created an unnecessarily slow, time-intensive interconnection process, with few mandates to complete them swiftly. Xcel Energy's insistence that they must evaluate one project at a time per substation bogged down the interconnection process in Minnesota so much that state regulators had to issue a formal order to do a cluster study to speed up the process (Farrell 2024). Ever-growing queue times and complexities delay shovel-ready projects for several years, posing time and financial costs some projects never recover from.

These four process constraints around interconnection seem particularly stacked against clean energy projects (as compared to fossil fuel plants). Because the total power capacity that comes out of solar or wind generation plants is generally much less than a coal or gas plant, clean energy projects have to submit many more requests than a fossil fuel-burning power plant for the same potential capacity (Clifford 2023). Further, utilities often charge renewable interconnections higher fees than comparable fossil fuel projects, sometimes increasing these costs significantly before interconnection. According to one industry expert, in the MISO region, wind and solar interconnection costs have tripled—from less than $100 per kilowatt-hour (kWh) between 2008 and 2016 to a few hundred dollars per kWh and spikes as high as $1,000 per kWh in some parts of the region in 2023 (Clifford 2023).

While interconnection constraints bedevil all types of clean energy projects—from utility-scale solar to offshore wind to large-scale battery storage—the active role of electric utilities in heightening these challenges is perhaps most illustrated in rooftop and community solar projects. These distributed energy resources are built close to where that energy is consumed, theoretically making them cheaper than large projects that require regional transmission lines to be built, such as wind projects. Deloitte found that by 2035, residential distributed energy resources could produce enough energy to offset expected growth in energy demand at a lower cost than building new infrastructure (Thomson et al. 2024). Putting clean energy production in the hands of communities and households, rather than distant utility conglomerates that could change rates at any time, can also lead to more equitable outcomes. But according to many community solar developers and advocates, despite these benefits, utility companies are erecting unnecessary roadblocks that slow or kill deployment. "Some utilities view community solar as a threat to their business model," says Zaid Ashai, the chairman and CEO of Nexamp, the largest community solar provider in the US (Semuels 2023).

A notable example in the DC metro area is Pepco—an Exelon subsidiary—which has been challenged by the DC Attorney General for undermining the District's ambitious renewable energy build-out goals. The AG's complaint alleged that Pepco was "systematically delaying community solar projects by unlawfully requiring installation of Pepco meters; engaging in widespread billing errors that undercount solar generation and mis-allocate generation belonging to community solar participants; and failing to properly compensate community solar projects for unsubscribed generation and unjustifiably requiring new customers to downsize their proposed systems" (Su et al. 2022). This case of alleged interference to slow the interconnection of distributed energy resources is not uncommon, according to experts. In a petition to the Federal Trade Commission (FTC), utility companies have been accused of abusing their monopoly status to maintain their status-quo market control over the electricity market by undercutting renewable competition through the interconnection process (Su et al. 2022).

To reduce interconnection backlogs and prevent discrimination, the Federal Energy Regulatory Commission (FERC) advanced some important procedural improvements in its Order 2023 (Norris 2023). However, the underlying incentives have not changed. As Gwen Brown and Sky Stanfield (2022) from the Interstate Renewable Energy Council have put it:

> Utilities have no incentive to create efficient interconnection processes on their own. Utilities have an absolute monopoly on grid access in their territories. As a result, the utilities hold all the cards in the interconnection process and there is no competitive pressure for utilities to improve the service they provide to interconnection customers.

Utilities Handicap the Build-Out of Critical Interregional Transmission Lines

In the US, many large-scale solar and wind resources are not geographically close to the areas with the most electricity demand. Long-distance, interregional transmission lines are thus necessary for connecting supply to demand. Indeed, an expanded and nationally interconnected transmission grid is key to unlocking the energy transition (Macey et al. 2022). The DOE estimates that interregional transmission in the United States must expand as much as fivefold to maintain reliability and improve resilience to extreme weather while providing access to low-cost clean energy (DOE 2023a). And while new clean energy investments spurred by the IRA could cut electricity emissions in half by 2030, this depends on transmission capacity expanding twice as fast over the next decade (Jenkins et al. 2022). If transmission is not developed quickly enough to meet growing electricity demand, researchers have found that gas- and coal-fired power plants would step into the vacuum to supply more electricity demand, reducing the chances of decarbonizing, and increasing pollution and other environmental

injustices associated with fossil fuel generation. Up to 80 *percent* of the benefits of the IRA investments would be lost (Jenkins et al. 2022).

Interregional transmission of clean electricity is not only critical to climate mitigation, it's an essential infrastructure to bring down families' utility bills. Because of their highly balkanized structure, electricity pricing markets in the US today are location-specific, with prices increasing when very particular locales face local capacity constraints. Associated congestion costs have risen significantly. After doubling from 2020 to 2021, congestion costs skyrocketed from $13 billion in 2021 to $21 billion in 2022 (Doying et al. 2023). American families are paying the price in higher utility bills. Expanding transmission to constrained areas would reduce utility bills by relieving congestion, reducing wholesale prices, and connecting customers with lower-cost renewable generation (Hausman 2024; DeLosa, Pfeifenberger, and Joskow 2024). Interregional electricity transmission seems then to be a win-win: connecting renewable supply with increasing demand at scale, allowing consumers to reach the lowest-cost electricity supply and thereby reducing overall electricity costs, reducing barriers to entry for more renewable energy developers, and replacing antiquated, harmful, and polluting fossil fuel plants.

Yet not all actors would benefit from these new and updated electricity superhighways, and they're making it known. Perhaps more challenging than the technical feats, the financial constraints, and the land-use debates is the reach and influence of utility incumbents and the upside-down set of incentives driving them to handicap and prevent interregional transmission.

Building interregional transmission lines means that many incumbent generators and utilities that currently benefit from the status quo of building and locking-in local transmission within their own closely guarded jurisdictions would face competition threatening industry company earnings and shareholder returns (Peskoe 2023b). More energy coming online through interregional transmission means fewer opportunities for utility firms to increase their profits through investing in their own local infrastructure. A recent empirical study centered on two major US electricity markets found that while reducing transmission constraints was economically efficient overall, some specific utility firms would lose out. Notably, four firms would have experienced a collective $1.6 billion drop in net profits in 2022 alone had the transmission been built and the market integrated (Hausman 2024). In regions with RTOs where governance is based on asset ownership, the more new entities emerge in the generation and transmission business, the less influence incumbent utilities expect to have to determine the rules, providing even more incentive to kill off nascent competition (Peskoe 2024).

Utility company actions to handicap interregional transmission pose especially heightened barriers to entry for renewables. While a natural gas plant can be built closer to existing load demand or local transmission lines within a utility's footprint, to

be effective, most renewable generators need to be in a specific location (where there is consistent sun or wind, for example)—but these locations don't neatly match up with the existing grid. As such, incumbent (often fossil fuel-based) electricity providers and utilities enjoy more opportunity to exercise market power in the presence of transmission constraints (Davis and Hausman 2016; Wolak 2015).

All else being equal, then, the current incentive structure leads incumbent utilities to prefer developing slow, expensive, fossil fuel–based infrastructure that they can control within their captive footprints, while also blocking new, cheaper, renewable infrastructure developed by a suite of different actors and transmitted over new, interregional power lines (Gearino 2023). Some state lawmakers have even further shielded utility companies by passing "right of first refusal" laws, which limit competition and open bidding by granting local utilities first priority to build new transmission over other developers looking to build multistate transmission lines. As a result of this legislation, interregional transmission is made even more complex and costly, leading to project cancellations. Notably, these "right of first refusal" laws are most common in the utility jurisdictions facing competition from strong rural wind energy resources that require interregional transmission (Gearino 2023). Furthermore, in many cases, new clean energy developers are forced to bear a disproportionate cost of building interregional transmission lines, even though the economic, reliability, and climate benefits are broadly shared. To help prevent freeriding and discrimination and to improve transmission, FERC recently issued Order 1920 to move toward a "beneficiary pays" approach, in line with the Federal Power Act (Macey and Mays 2024). But governance challenges remain.

A few relevant cases illustrate the extent to which some utility firms act as if new transmission lines carrying clean energy are a threat rather than an opportunity. Entergy, an investor-owned utility operating across the Mississippi Delta region, continues to exert significant influence to block the Southern Spirit project, which is a high-voltage transmission line proposed to connect the (increasingly renewable-sourced) Texas grid with the southeast. According to its filings, Entergy is blocking the project because it claims the transmission lines could compete with some of its existing gas-fired power plants (Tait 2024). However, in contrast to the cost of building local combustion turbines, the line was found to save customers more than $150 million (Stenclik and Deyoe 2022). This savings for households and businesses would cut into Entergy's bottom line—perhaps explaining Entergy's opposition (Tait 2024).

Meanwhile, the Southern Company, providing electricity in Alabama, Mississippi, and Georgia, has for years resisted transmission that would integrate renewable energy resources. The company has filed numerous comments with federal agencies opposing national standards or rulemakings that were designed to increase transmission, and has even challenged FERC's legal authority to regulate its transmission activities (Tait 2024). In the West, Xcel Energy's Public Service Company of Colorado is alleged to have acted

in a discriminatory fashion by reserving transmission capacity on its Power Pathway project for its own generating resources, shunting a proposed wind and solar project off the grid (Howland 2024).

The DOE found that two of the three regions that installed the fewest circuit-miles of transmission relative to regional load over the past decade—the Mississippi Delta and the southeast (DOE 2023a)—were also controlled by some of the most assertively anti-transmission and pro–fossil fuel utility companies. In 2022, FERC itself found that utility transmission planning and interconnection practices were failing to create an interconnected, interregional grid, leading to "unjust and unreasonable and unduly discriminatory" rates (FERC 2022).

Interregional transmission infrastructure is critical to a decarbonized economy. But the monopolistic, discriminatory, and noncompetitive tendencies of many utility companies—which intend to protect the market power of their existing assets above all—only slow and inflate the cost of this goal.

Business Structure Matters: Two Overarching Types of Shareholder-Owned Electric Utility Companies, with Differing Incentive Structures

In the fragmented and highly variable US electricity system, shareholder-driven utilities are structured in a variety of ways. For simplicity's sake, we can categorize private utilities into two overarching types: 1) "traditional" vertically integrated firms that own and operate the generation, transmission, and distribution of electricity, and 2) "restructured" utilities that focus on transmission and distribution, having sold their generation assets to independent suppliers.[2] This brief points to examples in which each type of utility is acting to slow and inflate the cost of the energy transition. Yet, importantly, they each face slightly different incentive structures.

Vertically Integrated Utilities

Throughout most of the last century, electric utility companies were vertically integrated monopolies that controlled the entire electricity supply chain, from generation to transmission to distribution. This "bundled" model of electricity provision still exists today in certain pockets of the country, especially in the

[2] This categorization is admittedly imperfect. As a result of a surge in mergers and acquisitions in the utility sector in the 1990s, many customer-facing utility companies are currently owned by larger holding companies, which themselves own vertically integrated and unbundled segments.

southeast (Duke Energy, Southern Company, Dominion Energy, Entergy) and parts of the west (Xcel Energy). Under this model, the utility alone determines the mix of energy resources it will deploy, with approval from relevant state public utility commissions. While in theory these utilities could choose to invest in large-scale clean energy projects, doing so would compete directly with their incumbent fossil fuel assets. Since most of these vertically integrated utilities have chosen in practice to prioritize their own fossil generation, other independent generators are the only ones left developing renewables. The incumbent utility sees these new, independent clean energy resources as direct competition to its share of the market for generating electricity. These utilities are then incentivized under the traditional model to use their power to block transmission and slow-walk interconnection because it would undercut the significant returns of their own generation assets.

Restructured Utilities

The second "unbundled" business structure emerged out of the deregulatory fervor in the late 1980s and 1990s. FERC and state utility commissions created this new utility structure to put a market at the center of electricity provision. In state after state, utility companies were restructured, with the aim of separating out the generation assets from the delivery of the electricity itself. Independent power providers would step in to compete in the wholesale electricity market, and the design of this critical market was essentially outsourced to RTOs and the utility companies which control them (Macey 2024). Today, two-thirds of Americans receive electricity managed by these entities (EPA 2024). No longer owners of dirty power plants, these newly "unbundled" utility firms should on the surface be neutral on whether new electricity production comes from renewables or fossil fuels. In practice, however, the restructured utilities still make much of their returns on building transmission infrastructure *within* their own territories. In contrast to gas-fired power plants, many of the transmission lines from utility-scale solar and especially wind projects cut across different utility territories. This greatly reduces the profit potential incumbent utilities have for developing new renewable projects. Not able to profit from these regional transmission lines, these restructured utilities may also use their power over the interconnection process to avoid having to bear any of their costs.

In sum, the varied structure of utility firms matters. Yet, even after 30 years of breaking up utilities into smaller, constituent parts, renewable energy still has a distinct disadvantage. While for slightly different reasons, for the most part, both vertically integrated and restructured electricity utilities still seem intent on standing in the way of a rapid and affordable energy transmission.

IV. Shareholder Governance of Electric Utilities: Misaligned Incentives Thwart the Energy Transition

Why would electric utility companies and their allies in RTOs act in ways that slow and inflate the cost of the energy transition? What purpose might it serve these companies to bog down renewable projects in interconnection queues and transmission constraints? Since most utilities get paid based on their capital expenditure on infrastructure, why are utility companies not doubling down on renewable infrastructure? This section explores the financial and political-economic incentives that structure and explain the reactive approach many investor-owned utilities (both vertically integrated and restructured) seem to take around bringing renewables online.

Roughly three-quarters of US electricity customers, or around 100 million households, receive electricity from utility companies owned by, and governed for, their shareholders (EIA 2019). Although originally understood that an electric utility was created for public purposes, private shareholder control of utility companies expanded greatly over time (Lusiani 2022). For much of the second half of the 20th century, shareholder involvement was considered necessary to bring in sufficient levels of capital to invest in building out needed electrical infrastructure. Utility firms would receive protection from competition, with revenues predetermined, and a certain return on equity virtually guaranteed by state regulators. In return, state public utility commissions were set up as watchdogs and regulators with the duty to protect the public, for example by ensuring affordable cost-of-service rates and reliable service (Peskoe 2016). With ever-increasing pressures on utilities to take whatever measures necessary to expand margins and distribute earnings to shareholders (Lusiani 2022), however, the foundations of this basic political settlement have cracked—to the benefit of shareholders and utility executives and to the detriment of customers and the climate.

The approved utility return on equity (RoE) is one key measure of how much more concentrated economic power shareholders and utility executives enjoy today compared with some decades ago. Utilities are entitled by state law and jurisprudence to a "just and reasonable" return (Peskoe 2016). Because utility companies enjoy a captive customer base with low risk, a reasonable return was traditionally considered to be just above the rate provided by "risk-free" government securities, such as Treasuries. In 1985, for example, utilities were allowed to earn a return just a bit above 10 year Treasury Bonds returns on average. That gap has grown considerably over the past 40 years. By 2023, US utilities on average were allowed to earn around 5 percent more than a risk-free return—even considering the recent jump in Treasury returns brought on by Fed interest hikes (Dunkle Werner and Jarvis 2024).

These excess returns granted to US utility firms have had enormous consequences for the affordability and speed of the energy transition. To start, customers pay more

when public utility commissions allow extravagant returns by their regulated utilities. A recent study by the Energy Institute at the UC Berkeley Haas School of Business found that excess returns among utilities cost customers $6 billion *per year* (Dunkle Werner and Jarvis 2024). Just a 1 percent reduction in return on equity could help households save nearly $4 billion nationwide each year. Climate mitigation also suffers from excess returns, especially in a medium– to high–interest rate environment. This is because renewables end up costing more in an environment of excess utility returns since most third-party renewable competitors aren't guaranteed artificially high returns but instead rely on the underlying capital costs to finance their investments (Foelske and Daniel 2024).

Much of the animus to increase utility returns has been prompted by shareholders demanding it. By 2022, the pressure on utility companies to please their shareholders resulted in an average of $25 billion being passed on to shareholders per year. At a time of escalating financing needs to cover climate, wildfire, security, and affordability risks, shareholder-owned utilities chose to distribute over 86 percent of their earnings directly to shareholders, mostly in cash dividend payments (Lusiani 2022). This hidden "shareholder tax" embedded in utility business models is simply unaffordable at a time of climate emergency, increasing overall electricity demand, and heightened costs of living for American families.

Beyond simple avarice, what specific governance or incentive mechanisms are prompting these companies to bury and delay the renewable build-out? After all, under traditional cost-of-service regulation, utilities make most of their profits through spending on capital improvements which then the companies convince regulators to pay for by raising rates on consumers (Kibbey 2021). If the utility sector knows how to (and is incentivized to) do one thing, it is to spend on big infrastructure. But why not renewable infrastructure, which could in theory create more jobs, reduce carbon emissions, and reduce variable costs for consumers?

If we dig a little deeper into the economics of renewables and the corporate governance of electric utilities, we find a series of misalignments between current utility business models and a rapid and affordable renewable build-out.

Some of the answers lie in important financing differences between building out renewables versus fossil-based electricity sources. First, fossil sources are much cheaper to finance, with a financing cost of only 7 percent over the asset life, compared to a 40 percent financing cost for renewables. As importantly, capital expenditure needs are far greater for a renewable project than a fossil one. What do renewable projects offer in return for higher cap expenditure and financing costs? Much, much lower operating costs over the life of the project, as shown in Figure 2 (Bullard 2024).

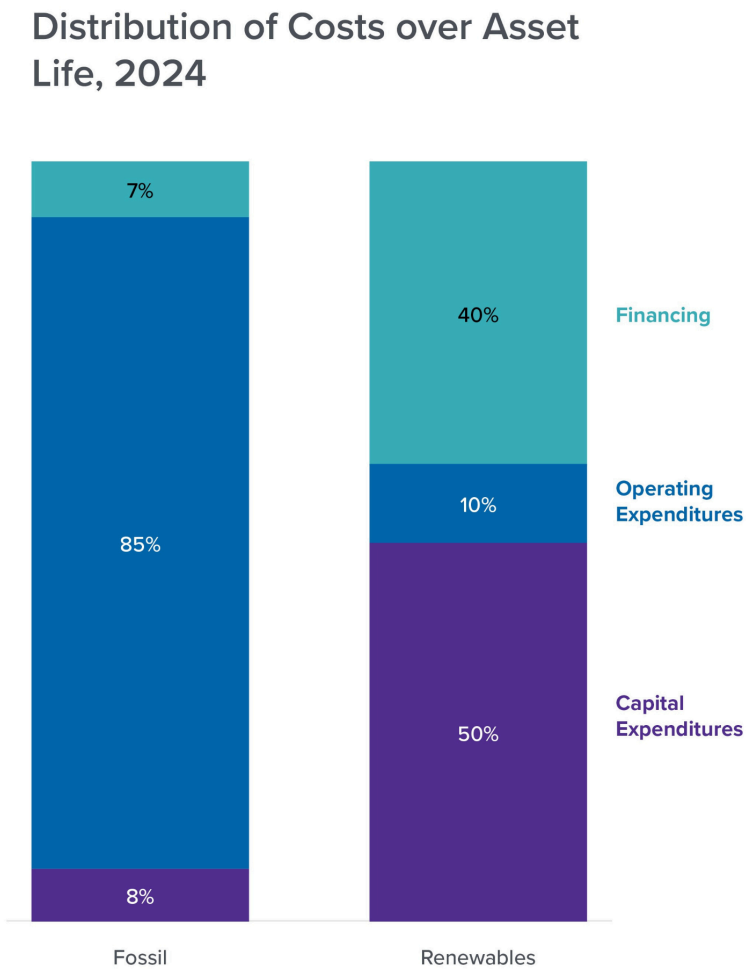

Figure 2. Source: Bullard 2024, Regulatory Assistance Project

Natural gas needs to be paid for every time you fire up the plant. In contrast, a solar and storage project will produce electricity essentially free of variable costs as long as the sun comes up in the morning. This is precisely why transitioning to electrified, renewable energy will significantly increase price stability, helping bring down costs for consumers (Melodia and Karlsson 2022).

Yet here is where the utility business model most conflicts with what's good economics. Utilities are rewarded for making additional capital investments. Their incentive is to acquire capital assets with both low costs of capital and less risk. Renewables cost more to finance, and are perceived to bear more risk by utility executives used to working with fossil fuels. So, why don't the lower associated operating costs make up for this and allow utility companies to profit from keeping rates the same while reducing operating costs? The problem here is that the utility sector faces no penalty for higher operational costs because these firms are permitted by regulators to pass those costs on directly to ratepayers through fuel adjustment clauses. The main economic benefit of renewables—much lower operating costs—simply does not play into utility decision-making because they are generally already passing on the high and volatile costs of fossil fuels to their captured consumer base.

According to Aneil Kovvali and Roosevelt Institute Fellow Joshua Macey (2023),

> A utility that reduces its costs [say through investing in utility solar] discloses to regulators that it is able to provide service at a lower price . . . Shareholders also typically do not absorb operating, maintenance, and fuel expenses, as regulators generally allow utilities to pass those costs through to the consumer. Even if a

gas to solar or wind, the shareholders would not have a direct incentive to support the effort because the shareholders do not absorb the relevant expenses.

The rules allowing utility companies to pass on the costs of fossil fuels to consumers not only reduce investment in the types of renewable projects that would reduce utility bills—they also make our country's climate policies much less effective because utility companies don't have to pay the financial costs of environmentally harmful activities like carbon emissions. The incentives in the IRA, for example, are far less attractive when utilities don't benefit from the reductions in operational costs from transitioning to clean energy production (Macey 2024).

In contrast to a fossil-fueled system, financing the future of an electrified, renewable grid has costs borne by utility executives and shareholders, and benefits borne by current consumers and future generations. Beyond incremental fixes, breaking the utility chokehold over interconnection delays and transmission disinvestments requires resetting the rules governing the utility sector.

V. Proposals to Reimagine Governance and Public (Utility) Options for Renewable Energy

After years of mismanagement and abuse by electricity holding companies and a vital need to expand affordable electrification, President Franklin D. Roosevelt took decisive action after the Great Depression to reset the rules of the game for utilities. He signed into law the Public Utility Holding Company Act (PUHCA) to break up the monopolies of the day, amended the Federal Power Act (FPA), and greatly expanded the public provision of electricity as a "yardstick" to raise the bar of service and affordability across the country.

Today after decades of self-interested actors whittling away at these advances, the way in which we govern the critical public service of electricity provision is fundamentally broken and biased. Yet again, we face an inflection point requiring a rewrite of the rules of how we produce and deliver electricity in the 21st century. What follows are a suite of proposals toward accelerating an affordable and just energy transition.

Rate of return is a policy choice—reduce and reinvest excess returns.

- Align utility returns on equity with actual costs of capital (after factoring in the savings from the IRA) to lower customers' electricity bills and support the financial competitiveness of renewable energy entrants. Returns are not sacrosanct, and commonsense rules can be adjusted to mitigate harmful excess. As one example, the Illinois Commerce Commission recently lowered the return on equity of two utilities by 1.5 percentage points below what was requested in

the interests of customer affordability and environmental justice (Illinois Commerce Commission 2023).
- Ban utility share repurchases and establish caps on dividend payments to reduce the drive for ever higher earnings, while also providing capital to reinvest in cost-effective renewables.
- Prevent utility companies from simply passing fossil fuel costs to consumers, so that they instead share in the volatility risks inherent to fossil fuel dependence.

Shed light on decision-making and rebuild the state capacity of regulators to serve the public interest.

- Enhance transparency over interconnection processes and accountability over electricity grid operators' transmission decision-making as essential steps to unlocking the transition.
- Boost the capacity and the financial expertise of understaffed permitting and regulatory agencies—as well as state public utility commissions—to allow them to work more independently, efficiently, and effectively in the public interest.
- Revisit FERC's merger policies to ensure that the past and future consolidation in the utility sector is consistent with the public interest, including an affordable and speedy energy transition. The proliferation of multistate and multinational utility holding companies is preventing fair competition between renewable entrants and utility incumbents.
- Federal antitrust agencies can also build knowledge by conducting a broader holistic investigation into potentially unlawful practices by utility firms by abusing their dominant positions to stifle renewable energy competition and harm consumers.

Reimagine utility platform governance.

- Adopt new fiduciary duties for shareholder-controlled utilities to privilege the public interest, including current and future generations. One intermediate step toward that end could be to ensure that investor-owned utilities' duty of care requires directors and/or officers of the utility to make decisions that pursue the interests of current and future ratepayers, and the communities historically harmed by their actions.
- Mandate that workers, community representatives, and ratepayers serve on the boards of investor-owned utilities to help restore proper checks and balances and ensure more utility accountability to what really matters.
- Restrict the ability of utility companies to pass on their lobbying expenditures to ratepayers to put a dent in the corrosive effect of special interests in critical governance processes.
- End the conflicts of interest around interconnection and transmission processes by disallowing the incumbents who benefit from interconnection and transmission decisions to determine their outcome. One option would be to

entrust public offices to take charge of interconnection requests, rather than an RTO or investor-owned utility itself. A more robust solution would be to equip a public body, such as a "Federal Grid Planning Authority" to take charge of national transmission planning, folding in the interconnection request process.

Embrace and experiment with public power options as "yardsticks" toward a just transition.

- Build localized public renewable projects to not only supplement but compete with private providers on mission, price, and efficiency. If governed correctly, public power providers with a public mission can provide electricity at a lower cost, benefiting as they do from very low tax rates and significantly lower capital costs, and free of the "shareholder tax" of shareholder-owned utilities.
- Support public ownership of distributed energy resources to alleviate the need for transmission by localizing renewable production. In the absence of federal leadership, states and municipalities can take the lead. Examples of this include the New York Power Authority's plan to develop and operate renewables statewide, New York City's PublicSolarNYC program to install cost-saving solar panels for energy-burdened communities, and Ann Arbor's plan for a series of renewable microgrids that reduce the need for the traditional utility model.
- Empower the federal government to deploy transmission infrastructure to connect renewable projects to demand centers. This will help build a decarbonized 21st-century grid unencumbered by special interests that prevent progress. The federal government—with long-term planning horizons, a national democratic mandate, environmental justice mandates, and an ability to absorb financial risks—is well-suited to lead and build the regional and interregional projects that will serve as the backbone of a just energy transition. DOE's announced $1.2 billion award to support new high-voltage transmission lines, on top of the $1.3 billion it provided last fall to three interstate projects, was one step forward (DOE 2023b).

VI. Conclusion

Ultimately, unlocking interconnection delays and building sufficient transmission to support the energy transition are political economy challenges more than technical ones. Government has a critical function to shift incentive structures to overcome these bottlenecks and accelerate the just and green transition the American economy and the American people require. Utility companies have grown used to—at best—reacting to the need for a decarbonized and more decentralized electricity grid, rather than proactively planning for it as the generational opportunity it is. Current incentive structures set out in the business models of shareholder-owned utility companies are currently incompatible with the objective of a rapid, affordable, and equitable energy transition. Likewise, the rules governing the grid are outdated and

biased toward fossil fuel incumbents. “Governance reform,” as Shelley Welton has said, “is a precondition to building the grid of the future because a system planned *by* incumbents is likely to remain a system planned *for* incumbents” (Welton 2024). Governance solutions thus must be tailored to the underlying governance problems, putting people and planet before shareholder returns.

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